

Atmospheric Science Data Center Update

CERES Science Team Meeting

Jeff Walter

04/28/2020

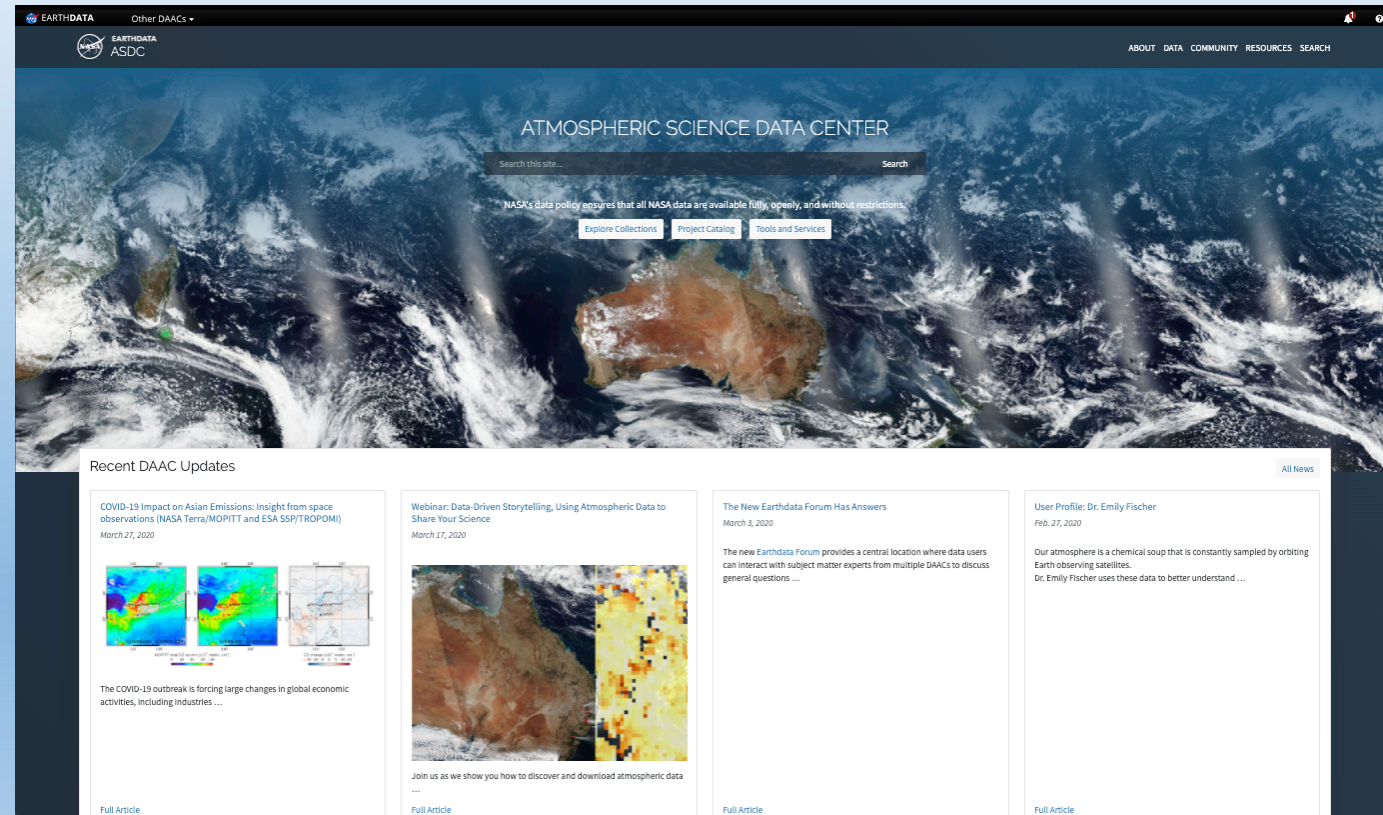
Outline

- New Capabilities
- Infrastructure Updates
- ASDC in the Cloud



New ASDC Web Site


- New ASDC website:
 - Currently in Beta version
- <https://asdc.larc.nasa.gov>
- Each mission has a Dynamic Landing Page (DLP)
- Tools & Services page → Learning Resources
 - Microarticles, Jupyter Notebooks, StoryMaps, etc.



Earthdata Forum

- <https://forum.earthdata.nasa.gov/>
- Users post questions, moderators assign tags, SMEs answer technical details related to data
- Login with Earthdata login
- Can search by keyword; Drop down menus for Discipline, DAAC, Major Projects, and Services/Usage
- Launched on February 25th

Earthdata Forum



Welcome to the Earthdata User Forum! Here, subject matter experts from several NASA Distributed Active Archive Centers (DAAC) can discuss general questions, research needs and data applications. Users can query how to access, view and interpret the data.

[Quick links](#) [FAQ](#) [Data Recipes](#) [Login](#)

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It is currently Wed Feb 05, 2020 2:38 pm America/New_York

[Post a New Question](#)

SEARCH

Search for keywords, tags... [Advanced Search](#)

OR

SEARCH BY TAGS

Discipline

DAAC

Major Projects

Services/Usage

Select Select Select Select

Submit

[What do these tags mean?](#)

OR

FORUM

[All Questions/Comments](#)

Please enter here to ask a question about any NASA Science related topics!

QUESTIONS

POSTS

LAST POST

156

348

[Re: GNSS](#)
by [CDDIS_support_Lori](#)
Tue Feb 04, 2020 1:44 pm
America/New_York

[Home](#) [Contact us](#) [NASA Distributed Active Archive Centers \(DAAC\)](#) [Delete cookies](#) All times are UTC-05:00

NASA Official: John M. Kusterer

Site Curator: NASA Langley ASDC User Services


National Aeronautics and Space Administration

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Last modified on February 4, 2020

Earthdata Forum

 Forum

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CERES

[New Question](#)

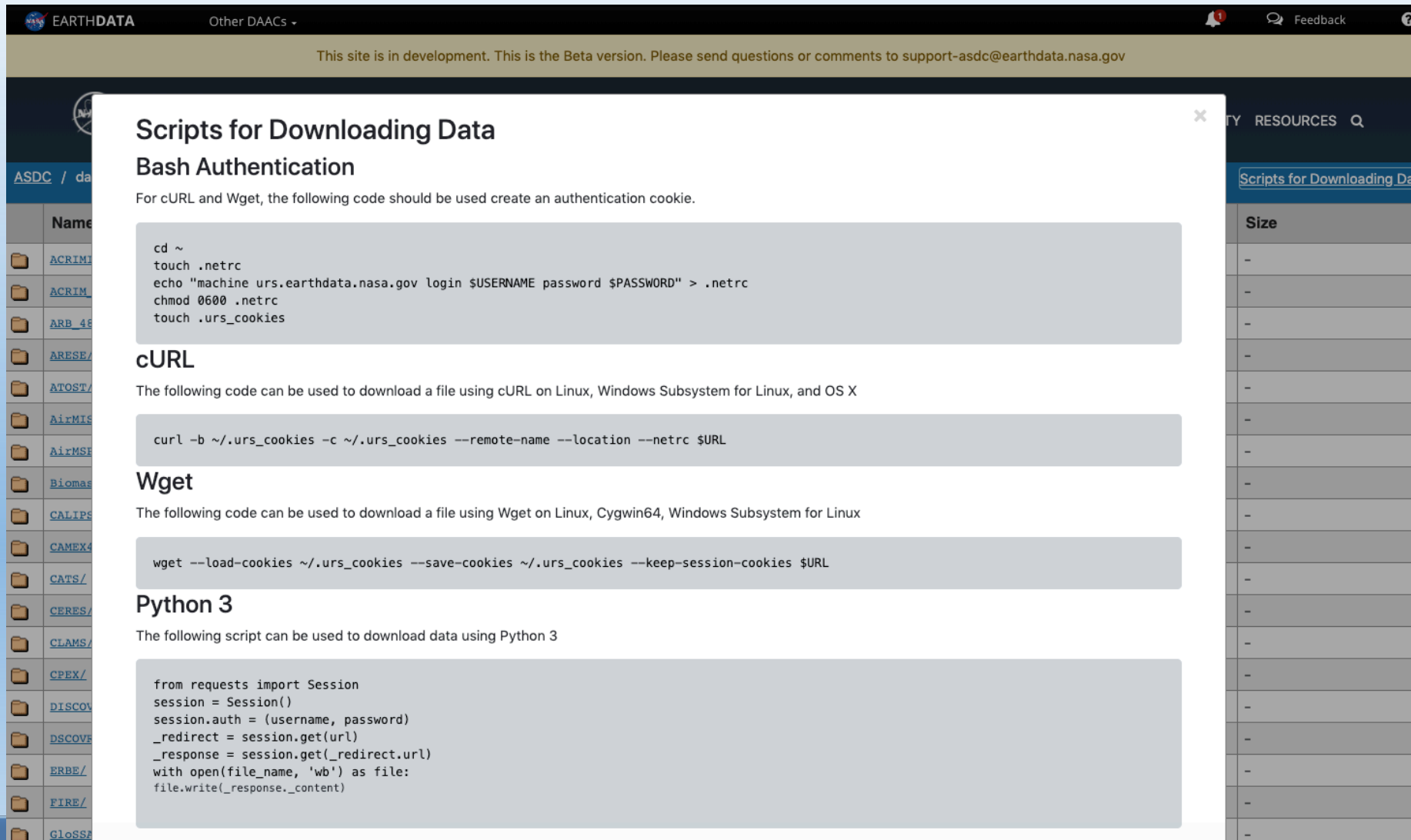
14 questions • Page 1 of 1

QUESTIONS	REPLIES	LAST POST
<div></div> CERES data scene types by EarthdataForumUser » Mon Feb 10, 2020 4:32 pm America/New_York ASDC Atmosphere CERES Data Access	1	by wfmiller View the latest post Fri Feb 14, 2020 1:22 pm America/New_York
<div></div> Software tools for CERES NetCDF data products by prior_forum_contributor » Tue Jan 07, 2020 10:14 am America/New_York ASDC Atmosphere CERES Data Visualization	1	by asdc_user_services View the latest post Tue Jan 07, 2020 10:15 am America/New_York
<div></div> Software for CERES HDF data products by prior_forum_contributor » Tue Jan 07, 2020 10:13 am America/New_York ASDC Atmosphere CERES Data Visualization	1	by asdc_user_services View the latest post Tue Jan 07, 2020 10:14 am America/New_York
<div></div> How do I obtain CERES data? by prior_forum_contributor » Tue Jan 07, 2020 9:52 am America/New_York ASDC Atmosphere CERES Data Download	1	by asdc_user_services View the latest post Tue Jan 07, 2020 9:53 am America/New_York
<div></div> Which CERES product should I use? by prior_forum_contributor » Tue Jan 07, 2020 9:46 am America/New_York ASDC Atmosphere CERES Data Search	1	by asdc_user_services View the latest post Tue Jan 07, 2020 9:48 am America/New_York
<div></div> CERES Product Levels by prior_forum_contributor » Tue Jan 07, 2020 9:42 am America/New_York ASDC Atmosphere CERES	1	by asdc_user_services View the latest post Tue Jan 07, 2020 9:44 am America/New_York
<div></div> Classroom Resources: Analyze CERES Data by prior_forum_contributor » Mon Jan 06, 2020 11:48 am America/New_York	1	by asdc_user_services View the latest post Mon Jan 06, 2020 11:49

Direct Data Download

EARTHDATA Other DAACs Feedback			
This site is in development. This is the Beta version. Please send questions or comments to support-asdc@earthdata.nasa.gov			
EARTHDATA ASDC		ABOUT DATA COMMUNITY RESOURCES	
ASDC / data		Scripts for Downloading Data	
Name	Last modified	Size	
 ACRIMII/	2019-10-24 06:30	-	
 ACRIM_III/	2019-10-24 11:26	-	
 ARB_48_IN_LIDAR/	2019-10-26 02:49	-	
 ARESE/	2019-10-26 02:49	-	
 ATOST/	2019-10-26 02:49	-	
 AirMISR/	2019-10-24 08:04	-	
 AirMSPI/	2019-10-26 02:49	-	
 Biomass_Burning/	2019-10-26 02:50	-	
 CALIPSO/	2020-04-27 16:15	-	
 CAMEX4/	2019-10-28 05:22	-	
 CATS/	2019-10-28 05:35	-	
 CERES/	2019-11-04 05:58	-	
 CLAMS/	2019-11-04 05:29	-	
 CPEX/	2019-11-04 05:29	-	
 DISCOVER-AO/	2019-11-04 05:29	-	

Direct Data Download



The screenshot shows the NASA EarthData website interface. At the top, there's a header with the NASA logo, 'EARTHDATA', and a link to 'Other DAACs'. A yellow banner below the header states: 'This site is in development. This is the Beta version. Please send questions or comments to support-asdc@earthdata.nasa.gov'. The main content area is a modal window titled 'Scripts for Downloading Data' with a close button (X) in the top right corner. The modal is divided into sections for different authentication methods: Bash Authentication, cURL, Wget, and Python 3. Each section provides a brief description and a code block with the necessary commands or script. On the left side of the modal, there's a sidebar with a list of data sets, each with a folder icon and a name. On the right side, there's a table with a 'Size' column and several rows of data, though the specific data values are not legible.

Scripts for Downloading Data

Bash Authentication

For cURL and Wget, the following code should be used create an authentication cookie.

```
cd ~
touch .netrc
echo "machine urs.earthdata.nasa.gov login $USERNAME password $PASSWORD" > .netrc
chmod 0600 .netrc
touch .urs_cookies
```

cURL

The following code can be used to download a file using cURL on Linux, Windows Subsystem for Linux, and OS X

```
curl -b ~/.urs_cookies -c ~/.urs_cookies --remote-name --location --netrc $URL
```

Wget

The following code can be used to download a file using Wget on Linux, Cygwin64, Windows Subsystem for Linux

```
wget --load-cookies ~/.urs_cookies --save-cookies ~/.urs_cookies --keep-session-cookies $URL
```

Python 3

The following script can be used to download data using Python 3

```
from requests import Session
session = Session()
session.auth = (username, password)
_redirect = session.get(url)
_response = session.get(_redirect.url)
with open(file_name, 'wb') as file:
    file.write(_response._content)
```


Infrastructure Updates

- Retiring the WebRA environment and moving web capabilities to either OpenShift or the VM stack
 - OPeNDAP and ArcGIS moving to VMs
 - POWER moving to VM first and eventually to OpenShift
- 6 PB storage in the DMZ
 - Making all public data available via Direct Data Download (<https>) in the DMZ
- Future plans
 - Virtualized infrastructure
 - Move all (or nearly all) infrastructure to the DMZ

Infrastructure Updates

- OpenShift
 - Moved underlying application nodes to VMs
 - Allows for live migrations and updates without having to bring applications down
 - Better configuration management
 - 3 environments (DMZ, Internal, Sandbox)
 - Sandbox environment allows admins to test upgrades and new capabilities before rolling out to production environments
 - Upgrade to Version 3.11
 - Stability and bug fixes
 - Ability to use highly available EMC Isilon storage
 - Security updates
 - Horizontal pod scaling
 - Grafana Dashboard
 - Working on making this available to application owners
 - Kubernetes Operators are supported

ASDC in the Cloud

- ESDIS heavily investing in commercial cloud
 - Primary motivations
 - To allow the science community to do unprecedented science with unconstrained processing and storage resources across all EOSDIS data in highly available AWS
 - The size of future datasets makes on-prem archiving highly undesirable
 - SWOT and NISAR most often cited
 - Building and AWS-native ingest and archive system called Cumulus

ASDC in the Cloud

- Phase 1 Cloud Proposal/Plan to ESDIS
 - ASDC developing a plan for a “Phase 1” cloud activity
 - Due to ESDIS this week
 - Covers 18 months beginning early May 2020
 - Concept for how to leverage cloud for supporting services (subsetting, etc)
 - Concept for ingesting data into the cloud
 - Ingest to ASDC, send a copy to AWS
 - Identifying some ASDC data sets to move into the cloud
 - Will include one or two “high value” data sets from CERES, MISR, and MOPITT
 - For CERES, we are using the SYN1deg for Terra-Aqua-MODIS
 - New missions are expected to be “born in the cloud”
 - MAIA and TEMPO
 - Data will be still be archived onsite at ASDC for the foreseeable future
 - Does NOT include migrating CERES science data production

ASDC in the Cloud

- Guiding Principles

- User experience will not be interrupted or degraded
- Activities being planned in a way to avoid introducing technical and schedule risks and dependencies
- ASDC will be working closely with ESDIS on identifying risks, technical complexities, and uncertainties, and proposing concepts and architectures for mitigating these concerns

ASDC in the Cloud

- We want to hear your thoughts!
 - What do you consider other “high value” ASDC data sets for access in AWS?
 - Value proposition for you and your colleagues?
 - Challenges with using the cloud?
 - Is AWS sufficient or do you have any preference for a different cloud vendor (i.e. Google or Microsoft)?

Questions?



**Atmospheric
Science
Data Center**

**NASA Langley Research Center
Hampton, VA**